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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BASIS SCIENCE INC.,
Requester,

v.

BODYMEDIA, INC.,
Patent Owner.

Appeal 2017-000042
Reexamination Control 95/002,367
Patent 8,157,731 B2
Technology Center 3900

Before BRADLEY W. BAUMEISTER, JEREMY J. CURCURI, and IRVIN E. BRANCH, *Administrative Patent Judges*.

BAUMEISTER, *Administrative Patent Judge*.

DECISION UNDER 37 C.F.R. § 41.77(f)

SUMMARY

Jurisdiction of the present *inter partes* reexamination has been returned to the Board pursuant to 37 C.F.R. § 41.77(f) for reconsideration of the Examiner's most recent decision adverse to patentability of claims 1–8, 11, 18, 19, and 42. Previously, the Board also had affirmed the Examiner's decision adverse to patentability of claims 9, 10, 12–17, and 20–41, but our affirmance in relation to those was not designated as new grounds, so we do not further consider the rejection of those claims.

We reverse the Examiner's decision adverse to patentability of claims 1–8, 11, 18, 19, and 42.

BACKGROUND

In an earlier Decision, the Board affirmed the Examiner's decision adverse to patentability of claims 1–42. Decision 12.[1] These claims were rejected as follows (*see* Examiner's Answer mailed Oct. 24, 2014, as modified by the Replacement Examiner's Answer mailed Oct. 31, 2014 ("Ans.") (incorporating by reference the Right of Appeal Notice mailed Apr. 15, 2014 ("RAN"), which, in turn (RAN 7), incorporates by reference the Action Closing Prosecution mailed October 23, 2013 ("ACP"))):

A. Claims 9, 10, 17, 22, 24, and 26 were rejected under 35 U.S.C. § 103(a) as unpatentable over Amano (US 6,030,342; issued Feb. 29, 2000),

[1] *Basis Science, Inc. v. Body Media, Inc.,* Appeal 2015-003467 (PTAB July 16, 2015), https://e-foia.uspto.gov/Foia/RetrievePdf?system=BPAI&flNm=fd2015003467-07-16-2015-1.

Myllymäki (US 5,670,944; issued Sept. 23, 1997), and Pottgen (US 5,524,618; issued June 11, 1996). ACP 5–70.

B. Claims 12–16, 27, and 28 were rejected under 35 U.S.C. § 103(a) as unpatentable over Amano, Myllymäki, Pottgen, and Mault (US 6,478,736 B1; issued Nov. 12, 2002). ACP 71–87.

C. Claims 1, 2, 8, 11, 18, and 19 were rejected under 35 U.S.C. § 103(a) as unpatentable over Amano, Myllymäki, Pottgen, and Shusterman (US 6,925,324 B2; issued Aug. 2, 2005). ACP 87–94.

D. Claims 3–7 were rejected under 35 U.S.C. § 103(a) as unpatentable over Amano, Myllymäki, Pottgen, Shusterman, and Mault. ACP 94–106.

E. Claim 20 was rejected under 35 U.S.C. § 103(a) as unpatentable over Amano, Myllymäki, Pottgen, and Roncalez (US 2003/0138763 A1; published July 24, 2003). ACP 106–110.

F. Claims 29–41 were rejected under 35 U.S.C. § 103(a) as unpatentable over Amano, Myllymäki, Pottgen, Mault, and Bridger (US 6,491,647 B1; issued Dec. 10, 2002). ACP 111.

G. Claim 42 was rejected under 35 U.S.C. § 103(a) as unpatentable over Amano, Myllymäki, Pottgen, Mault, and Bridger and Shusterman. ACP 111.

In so affirming these rejections, the Board designated the obviousness rejections of claims 1–8, 11, 18, 19, and 42—the rejections that were based, in part, upon Shusterman—as constituting new grounds of rejection.[2] Decision 9, 10, and 12.

[2] The Decision expressly states that claims 1, 2, 8, 11, 18, and 19 are designated as a new ground of rejection. Decision 12. While express

Following the Board's Decision, Patent Owner further amended independent claim 1, as well as dependent claims 11, 18, and 19. Patent Owner Response Pursuant to 37 C.F.R. § 41.77(b)(1) at 14 (filed Aug. 17, 2015) ("PO 41.77(b)(1) Response"). Patent Owner requested that prosecution be reopened pursuant to 37 C.F.R § 41.77(b)(1) (*id.* at 1), argued that these claim amendments overcame the new grounds of rejection (*id.* at 16–31), requested that the rejections be withdrawn (*id.* at 31), and requested that the claims subject to the new grounds should be indicated to be patentable (*id.*).

The Board subsequently issued an Order Remanding *Inter Partes* Reexamination Under 37 C.F.R. § 41.77(d) to the Examiner (mailed Oct. 27, 2015) ("Remand Order"). The Remand Order granted Patent Owner's request to reopen prosecution, entered Patent Owner's proposed claim amendments and comments, and remanded the case to the Examiner for further consideration. Remand Order 6.

Upon further examination, the Examiner determined that Patent Owner's claim amendments overcame the new grounds of rejection that were set forth in the Board's Decision. Determination Under 37 C.F.R. § 41.77(d) at 6 (mailed Dec. 2, 2015) ("Ex'r 41.77(d) Determ'n"). However, in response to Patent Owner's 41.77(b)(1) Response, Requester

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reference to claims 3–7 and 42 was omitted, the Decision makes reasonably clear that "no error in the Examiner's rejection[s of these dependent claims] under 35 U.S.C. § 103(a)" were found "[f]or the reasons we set forth" in relation to the independent claims from which claims 3–7 and 42 depend. Decision 11. That is, the Decision makes reasonably clear that the rejections of claims 3–7 and 42 were also deemed to constitute new grounds of rejection.

had proposed a new ground of unpatentability for the amended claims over the combination of Amano, Myllymäki, Pottgen, Shusterman, and Gutta (US 6,968,294 B2; issued Nov. 22, 2005) ("the five-reference combination"). Comments by Third Party Requester 6–10 (filed Sept. 17, 2015) ("Requester 41.77(c) Comments"). The Examiner agreed with Requester that the new claims are unpatentable over the newly proposed five-reference combination. Ex'r 41.77(d) Determ'n 4–11.

Subsequent to the Examiner issuing this § 41.77(d) Determination, Patent Owner submitted its Comments in Response to Examiner's Determination Pursuant to 37 C.F.R. § 41.77(e) (filed January 4, 2016) ("PO 41.77(e) Comments"). Requester then timely submitted its Third-Party Requester's Reply to Patent Owner's Comments in Response to Examiner's Determination Pursuant to 37 C.F.R. § 41.77(e) (filed February 2, 2016) ("Requester 41.77(e) Reply"). The reexamination proceeding is now returned to the Board for reconsideration pursuant to 37 C.F.R. § 41.77(f). Ex'r 41.77(d) Determ'n 11.

We review the appealed rejections for error based upon the issues identified by Patent Owner and in light of the arguments and evidence produced thereon. *See Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential).

ILLUSTRATIVE CLAIM 1

Claim 1 is illustrative of the claimed subject matter in dispute. Claim 1 is reproduced below with amended claim language underlined and deleted claim language appearing in brackets:

1. An apparatus for deriving a state parameter of an individual, comprising:

a processor;

a sensor for generating a sensor output signal comprising data indicative of a rate of heat flowing off said individual's body, and a sensor for generating a sensor output signal comprising data indicative of a resistance of said individual's skin to an electric current, said sensor output signals being directed to an electronic communication link with said processor;

wherein said processor automatically determines a context of said individual by:

determining with a naive Bayesian classifier[and a linear regression by using], a first weight indicating a probability that the individual is in a resting state and a second weight indicating a probability that the individual is in an active state, the naïve Bayesian classifier having inputs comprising said data indicative of the rate of heat flowing off said individual's body, [and]

calculating a first linear regression for the resting state of the individual, the first linear regression having inputs comprising said data indicative of the rate of heat flowing off said individual's body and said data indicative of the resistance of said individual's skin to an electric current, and

calculating a second linear regression for the active state of the individual having inputs comprising said data indicative of the rate of heat flowing off said individual's body and said data indicative of the resistance of said individual's skin to an electric current; and

wherein said processor utilizes said context to predict the energy expenditure of said individual by calculating a weighted sum of the first linear regression and the second linear regression, wherein the weighted sum is weighted with the first weight and the second weight from the context.

FINDINGS AND CONTENTIONS

The Examiner finds, *inter alia*, that the five-reference combination proposed by Requester supports the conclusion that claims 1, 2, 8, 11, 18, and 19 lack patentability under 35 U.S.C. § 103(a). Ex'r 41.77(d) Determ'n 6–11. Towards this end, the Examiner finds that Amano teaches claim 1's newly added language "calculating a weighted sum of the first linear regression and the second linear regression, wherein the weighted sum is weighted with the first weight and the second weight from the context." *Id.* at 8–11.

Amano's protocols entail determining a context (e.g., whether a subject is active or at rest) (*e.g.,* Amano FIG. 17, steps Sa1–Sa4), selecting one of two potential regression formulas based on the determined context (*id.* at steps Sa5, Sa6), and then calculating the calorie expenditure using just the one selected regression formula (*id.* at step Sa7). Neither Requester nor the Examiner disputes that Amano calculates the calorie expenditure using only one regression formula. Requester 41.77(c) Comments 9; Ex'r 41.77(d) Determ'n 8–9. The Examiner reasons as follows, though, for why Amano's protocol satisfies claim 1's requirement of using a weighted sum:

> The Examiner finds that *Amano et al.* explicitly discloses a processor **CPU 201** that automatically determines a "resting" or "active" state (*i.e.,* context of an individual) based on collected data indicative of a certain measurements of an individual's skin (*i.e.,* body motion, pressure and temperature) by the device. *(Amano et al.* col. 8, l. 62–col. 9, l. 14; col. 12, ll. 21–28; col. 18, ll. 6–38). By teaching the use of either a resting or active regression formula, Requester [contends] that *Amano et al.'* s determination is a weighted sum with the weights being either a

> "zero" or "one" for each regression formula selection, depending on an individual's activity level. ([Requester 41.77(c) Comments] 9). Requester specifically states,
>
> > [because] a probability quantifies the likelihood of an event occurrence with a numeric value ranging from zero to one, Amano's binary weights (*i.e.,* a weight of zero or one) qualify as the probabilistic weights of the amended claims. In essence, Amano teaches the use of each regression formula based on a person's activity level, while assessing the activity level with a binary probability distribution of the person being active or resting.
>
> (*Id.*). The Examiner agrees. The Examiner concludes that *Amano et al.* sufficiently teaches the binary selection of using either the "resting" or "active["]regression formula with weighing the probability of each state (*i.e.,* a weight of zero or one).

Ex'r 41.77(d) Determ'n 8–9.

The Examiner then makes the following findings in relation to Gutta:

> The Examiner finds that *Gutta* explicitly teaches a classifier being a trained Bayesian network that is "capable of taking many different inputs and predicting a probability of the occupant being in a given emotional state and having a given personality." (*Gutta* col. 7, ll. 1–6). The Examiner finds that *Gutta* further teaches the utilization of *multiple classifiers, and the combination of state data provide[d] by each classifier thereof, to generate a combined state signal and a combined event signal*. (*Gutta* col. 9, ll. 19–31).

Ex'r 41.77(d) Determ'n 9 (emphasis added).

The Examiner concludes that the combined teachings of Amano and Gutta reasonably would have suggested "modify[ing] *Amano et al.*'s binary probability distribution with *Gutta's* Bayesian probabilities for selecting and weighing each regression formula to predict caloric expenditure, [because] both references teach classifying a subject's physiological condition and,

whether implicitly or explicitly, determining a corresponding probability." *Id.* at 9–10 (quoting Requester 41.77(c) Comments 9).

The Examiner further concludes that the combined teachings of Amano and Gutta would suggest "modify[ing *Amano's*] single derivation of caloric expenditure based on binary probability distribution with *Gutta's* combination of data from multiple state/health status Bayesian probability classifiers for deriving a combined caloric expenditure using data from each of the respective probability weighted "resting" and "active" state regression formulas." *Id.* at 10. The Examiner reasons that such a modification would be suggested because "both references teach classifying a subject's physiological condition and, whether implicitly or explicitly, determining a corresponding probability" (*id.* (citing Requester 41.77(c) Comments 9)), and also because "*Gutta* explicitly teaches the requirement of combining data from multiple state/health status classifiers to get the true current status indicative of the monitored person" (*id.* (citing Gutta col. 9, ll. 19–31)).

Patent Owner disputes that Amano's binary selection of one of the resting regression formula or the active regression formula reasonably may be interpreted as calculating the weighted sum of the outputs of first and second linear regression formulas. PO 41.77(e) Comments 19–21. Patent Owner instead urges that such an interpretation is unreasonably broad. *Id.*

In response, Requester urges that "[t]here is nothing in the specification [of Patent Owner's '731 Patent] indicating that the weights cannot be binary, 'zero' and 'one.'" Requester 41.77(e) Reply 10. Requester further reiterates support for the Examiner's position: "it would have been obvious, after replacing Amano's threshold classifier with a

probabilistic method, to use the probabilities as non-binary weights applied to the two regression formulas to make use of the output of a Bayesian classifier." *Id.*

ANALYSIS

The Examiner points to no evidence in support of the finding that a binary selection of one of two potential outcomes reasonably would have been interpreted as constituting a weighted sum of the two options' outcomes. That is, the Examiner points to no evidence in support of the finding that a calorie expenditure derived from a single regression formula reasonably may be interpreted as constituting a weighted sum of the outcomes of two regression formulas. *See* Ex'r 41.77(d) Determ'n. 9–11.

Absent evidence to the contrary, we find this interpretation to be unreasonably broad. Under the Examiner's logic, any given number, alone, could be interpreted as constituting a weighted sum by virtue of the fact that it *could be* summed with another number and weighted in some manner.

Moreover, modifying Amano's teachings with those of Gutta does not overcome this shortcoming. To be sure, Gutta does teach using multiple Bayesian classifiers (*e.g.*, Gutta col. 6, l. 66–col. 9, l. 34), as well as "combin[ing] state data from multiple classifiers to generate a combined state signal and a combined event signal" (*id.* col. 9, ll. 29–31, *cited in* Ex'r 31.77(d) Determ'n 9). However, claim 1 does not recite calculating the weighted sum of the most likely outcomes of plural Bayesian classifiers. Claim 1 instead requires using a *single* Bayesian classifier to determine the respective likelihoods of mutually exclusive contexts or states (e.g., rest state vs. active state), calculating distinct outcomes for each of these mutually

exclusive contexts (e.g., via distinct linear regressions), and then weighting the sum of these distinct outcomes, which are associated with the mutually exclusive contexts.

The Examiner does not sufficiently establish why the recited protocol of claim 1 would have been obvious in view of the alternative protocol that would result from the combined teachings of Amano and Gutta. As such, the Examiner has not established the unpatentability of independent claim 1 over the recited five-reference combination of prior art proposed by Requester.

Independent claim 11, as well as dependent claims 18 and 19, likewise, similarly recite using weights in relation to the mutually exclusive contexts that are generated by a Bayesian classifier. Accordingly, we do not sustain the Examiner's decision adverse to patentability of claims 1, 2, 8, 11, 18, and 19.

Furthermore, the Examiner does not make any findings or conclusions in this regard in relation to Mault or Bridger. *See generally* Ex'r 41.77(d) Determ'n. Accordingly, we likewise do not sustain the Examiner's further decision adverse to patentability of dependent claims 3–7 and 42.

DECISION

The Examiner's decision adverse to patentability of claims 1–8, 11, 18, 19, and 42 is reversed.

In accordance with 37 C.F.R. § 41.79(a)(1), the "[p]arties to the appeal may file a request for rehearing of the decision within one month of the date of: . . . [t]he original decision of the Board under § 41.77(a)."

A request for rehearing must be in compliance with 37 C.F.R. § 41.79(b). Comments in opposition to the request and additional requests for rehearing must be in accordance with 37 C.F.R. § 41.79(c)–(d), respectively. Under 37 C.F.R. § 41.79(e), the times for requesting rehearing under paragraph (a) of this section, for requesting further rehearing under paragraph (d) of this section, and for submitting comments under paragraph (c) of this section may not be extended.

An appeal to the United States Court of Appeals for the Federal Circuit under 35 U.S.C. §§ 141–44 and 315 and 37 C.F.R. § 1.983 for an *inter partes* reexamination proceeding "commenced" on or after November 2, 2002, may not be taken "until all parties' rights to request rehearing have been exhausted, at which time the decision of the Board is final and appealable by any party to the appeal to the Board." 37 C.F.R. § 41.81. *See also* MPEP § 2682 (9th ed., Rev. 7, July 2015).

Requests for extensions of time in this *inter partes* reexamination proceeding are governed by 37 C.F.R. § 1.956. *See* 37 C.F.R. § 41.79.

In the event neither party files a request for rehearing within the time provided in 37 C.F.R. § 41.79, and this decision becomes final and appealable under 37 C.F.R. § 41.81, a party seeking judicial review must timely serve notice on the Director of the United States Patent and Trademark Office. *See* 37 C.F.R. §§ 90.1 and 1.983.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

REVERSED

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